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10/671,218

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Chan-Yul Kim

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EXAMINER

BELLO, AGUSTIN

ART UNIT

PAPER NUMBER

2613

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11/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|-----------------------------------|--|
| Office Action Summary | Application No. 10/671,218 | Applicant(s) KIM ET AL. | |
| | Examiner Agustin Bello | Art Unit 2613 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.
2. Applicant's arguments, see affidavits, filed 8/14/08, with respect to the rejection(s) of claim(s) 1-18 under 35 USC 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of the combination of Blahut and Casey.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 7, 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blahut (U.S. Patent No. 6,778,550) in view of Casey (Patent Application Publication No. US 2005/0144645 A1).

Regarding claims 1 and 10, Blahut teaches an optical transceiver (reference numeral 106 in Figure 1) configured to receive an optical TDM (Time Division Multiplex) broadcasting-telecommunications converged signal (i.e. broadcasting and telecommunication transmitted together) from a splitter (reference numeral 104 in Figure 1), to convert the optical broadcasting-telecommunications signal to an electrical broadcasting-telecommunications signal (reference

numeral 504 in Figure 5), and to convert an. uplink electrical signal received from a subscriber to an optical signal (reference numeral 517 in Figure 5); a broadcasting/telecommunications signal distributor (reference numeral 505 and its associated branching element at its output in Figure 5) configured to receive the electrical broadcasting/telecommunications signal, configured to separate the received, electrical broadcasting-telecommunications signal into a separate broadcasting signal (reference numeral 511 in Figure 5), and a separate telecommunications signal (reference numeral 512 in Figure 5), and configured to output the separated broadcasting signal and the separated telecommunications signal to separate destinations; a broadcasting interface (reference numeral 111 in Figure 1) configured to interface with the broadcasting signal received from the broadcasting/telecommunications signal distributor; and a telecommunications interface (reference numeral 107 in Figure 1) configured to interface with the telecommunications signal received from the broadcasting/telecommunications signal distributor, and providing the uplink signal to the optical transceiver (reference numerals 515, 517 in Figure 5), wherein the subscriber optic distributor (reference numeral 106 in Figure 1) is configured to be arranged at a user's location to receive at the user the optical TDM (Time Division Multiplex) broadcasting telecommunications signal via an optical fiber (reference numeral 105-1 in Figure 1) from the splitter (reference numeral 104 in Figure 1) of the optical transmission network in an Fiber To The Home arrangement. Blahut differs from the claimed invention in that Blahut fails to specifically teach that the disclosed splitter can be considered what the applicant refers to as an "Optical Network Unit." However, Casey teaches that the concept of receiving TDM broadcasting-telecommunications converged signals from an Optical Network Unit (reference numeral 2008 in Figure 11; paragraphs [0170], [0171]) at a subscriber

optical distributor (reference numeral 2012 in Figure 11) comprising a transceiver is well known in the art. One skilled in the art would have been motivated to employ an ONU as claimed in order to allow the distribution of local signals as opposed to signals solely originating from the headend. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to receive TDM broadcasting-telecommunications converged signals from an Optical Network Unit as taught by Casey at a subscriber optical distributor comprising a transceiver as taught by Blahut.

With respect to claims 7 and 16, Blahut discloses the subscriber optical distributor of claim I, wherein the broadcasting/telecommunications signal distributor receives the broadcasting-telecommunications signal from the optical transceiver, extracts time frame data and a clock signal of TDM (column 11 lines 40-50 (circuit 505 detects downstream broadcasting/telecommunications signal and recovers clock from a clock and data recovery circuit)) from the received broadcasting-telecommunications signal (column 6 lines 53-59 (timing for upstream frames is derived from downstream data)), and separating the time frame data into broadcasting data and Ethernet packet data (column 11 lines 50-62 (circuit 505 then determines which received cells are being broadcast and which are directed to that particular ONU. Ethernet interface 507 and broadcast interface 508 then accept the data that belongs to them))(column 13 lines 45-49 (ATM cells or IP packets can be used as the type of data formatting used in this invention)).

5. Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blahut in view Casey as applied to claims 1 and 10 above, and further in view of Sala (U.S. Patent No. 7,127,167).

With respect to claims 2 and 11, Blahut discloses the subscriber optical distributor of claim 1, however, Blahut does not specifically disclose a broadcasting controller for selecting specific channels. Despite this, broadcasting controllers are notoriously well known in the art and is cannot be considered a patentable limitation. Sala, from the same field of endeavor similarly discloses a fiber to the home optical transmission system using time division multiplexing (title) wherein a broadcasting controller is used (column 13 lines 26-44). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to implement the broadcasting controller as disclosed by Sala into the FTTH transmission system as disclosed by Blahut. The motivation for doing so would have been the obvious desire for the ability to readily control what information is accessed (Sala: column 13 lines 26-29).

6. Claims 3, 5, 9, 12, 14, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blahut in view Casey as applied to claims 1 and 10 above, and further in view of Thomas (U.S. Patent Application Publication No. 2003/0016692).

With respect to claim 3 and 12, Blahut discloses the subscriber optical distributor of claim 1, however fails to disclose said distributor is implemented as VCSEL (Vertical Cavity Surface Emitting Laser) transceiver. Thomas, from the same field of endeavor discloses a F'T'FH optical transmission system (page 1 paragraph 3) wherein each transceiver node (120, figure 3 (transceiver node)) is implemented as a VCSEL, (Vertical Cavity Surface Emitting Laser) transceiver (page 7 paragraph 73). Therefore, it would have been obvious to one of ordinary skill in the art to implement a VCSEL transceiver into the FTTH system as taught by Blahut. This is because Thomas teaches that such a selection is a mere design choice with multiple other functionally equivalent alternatives such as FP lasers and DFB lasers (page 7 paragraph 73).

With respect to claims 9 and 18, Blahut in view of Thomas disclose the subscriber optical distributor of claim 3, wherein the broadcasting/telecommunications signal distributor receives the broadcasting-telecommunications signal from the optical transceiver, extracts time frame data and a clock signal of TDM from the received broadcasting-telecommunications signal using an internal PLL, (Phase Locked Loop) (Blahut: column 11 lines 40-50 (circuit 505 detects downstream broadcasting/ telecommunications signal and recovers clock from a clock and data recovery circuit, CDR circuits inherently include a PLL mechanism)) and separating the time frame data into broadcasting data and Ethernet packet data (Blahut: column 11 lines 50-62 (circuit 505 then determines which received cells are being broadcast and which are directed to that particular ONU. Ethernet interface 507 and broadcast interface 508 then accept the data that belongs to them))(column 13 lines 45-49 (Blahut: ATM cells or IP packets can be used as the type of data formatting used in this invention)).

With respect to claims 5 and 14, Blahut in view of Thomas discloses the subscriber optical distributor of claim 3, wherein the VCSEL, transceiver (Thomas: page 7 paragraph 73 (VCSEL) comprises: an analog broadcasting receiver (Blahut: column 11 lines 57-67 (broadcast signal is sent to an analog television set)) a broadcasting- telecommunications signal receiver having PIN-PD) (504, figure 5), for receiving the TDM broadcasting- telecommunications signal (column 1 lines 59-65 (data in both directions includes video, data and digitized voice)); and a transmitter (Blahut: 517, figure 5 (laser)) for an Ethernet uplink (Blahut: column 12 lines 26-40 (output from Ethernet interface is sent upstream)). Despite the fact that Blahut in view of Thomas do not specifically disclose one photo diode for each interface shown, the setup taught by Blahut in view of Thomas with one photo-diode for two interfaces is functionally equivalent

in that both interfaces still receive individual electrical signals from a single optical signal. They are merely separated at different points. Furthermore both low noise and trans-impedance amplifiers are notoriously well known in the art as an advantageous element in combination with electro-optic receiver systems. Therefore it would have been obvious to one of ordinary skill in the art to implement either of said amplifiers to the reception system of Blahut in view of Thomas. The motivation for doing so would have been to reduce the amount of received signal noise.

7. Claims 4, 6, 8, 13, 15, and 17, are rejected under 35 U.S.C. 103(a) as being unpatentable over Blahut, Casey, and Sala, and further in view of Thomas.

With respect to claims 4 and 13, Blahut in view of Sala discloses the subscriber optical distributor of claim 2, however, Blahut in view of Sala fail to disclose said distributor is implemented as VCSEL (Vertical Cavity Surface Emitting Laser) transceiver, Thomas, from the same field of endeavor discloses a FTTH optical transmission system (page 1 paragraph 3) wherein each transceiver node (120, figure 3 (transceiver node)) is implemented as a VCSEL (Vertical Cavity Surface Emitting Laser) transceiver (page 7 paragraph 73). Therefore, it would have been obvious to one of ordinary skill in the art to implement a VCSEL transceiver into the FTTH system as taught by Blahut. This is because Thomas teaches that such a selection is a mere design choice with multiple other functionally equivalent alternatives such as FP lasers and DFB lasers (page 7 paragraph 73).

With respect to claims 6 and 15, Blahut in view of Sala and further in view of Thomas discloses the subscriber optical distributor of claim 3, wherein the VCSEL transceiver (Thomas: page 7 paragraph 73 (VCSEL) comprises: an analog broadcasting receiver (Blahut: column 11

lines 57-67 (broadcast signal is sent to an analog television set)) a broadcasting-telecommunications signal receiver having PIN-PD (504, figure 5), for receiving the TDM broadcasting-telecommunications signal (column 1 lines 59-65 (data in both directions includes video, data and digitized voice)); and a transmitter (Blahut: 517, figure 5 (laser)) for an Ethernet uplink (Blahut: column 12 lines 26-40 (output from Ethernet interface is sent upstream)), despite the fact that Blahut in view of Thomas do not specifically disclose one photo diode for each interface shown, the setup taught by Blahut in view of Thomas with one photo-diode for two interfaces is functionally equivalent in that both interfaces still receive individual electrical signals from a single optical signal. They are merely separated at different points, Furthermore both low noise and trans-impedance amplifiers are notoriously well known in the art as an advantageous element in combination with electro-optic receiver systems. Therefore it would have been obvious to one of ordinary skill in the art to implement either of said amplifiers to the reception system of Blahut in view of Thomas. The motivation for doing so would have been to reduce the amount of received signal noise.

With respect to claims 8 and 17, Blahut in view of Sala discloses the subscriber optical distributor of claim 1, wherein the broadcasting/telecommunications signal distributor receives the broadcasting-telecommunications signal from the optical transceiver, extracts time frame data and a clock signal of TDM (Blahut: column 11 lines 40-50 (circuit 505 detects downstream broadcasting/telecommunications signal and recovers clock from a clock and data recovery circuit)) from the received broadcasting- telecommunications signal (Blahut: column 6 lines 53-59 (timing for upstream frames is derived from downstream data)), and separating the time frame data into broadcasting data and Ethernet packet data (Blahut: column 11 lines 50-62 (circuit 505

then determines which received cells are being broadcast and which are directed to that particular ONU. Ethernet interface 507 and broadcast interface 508 then accept the data that belongs to them))(column 13 lines 45-49 (Blahut: ATM cells or IP packets can be used as the type of data formatting used in this invention)).

Response to Arguments

8. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/Agustin Bello/
Primary Examiner, Art Unit 2613